

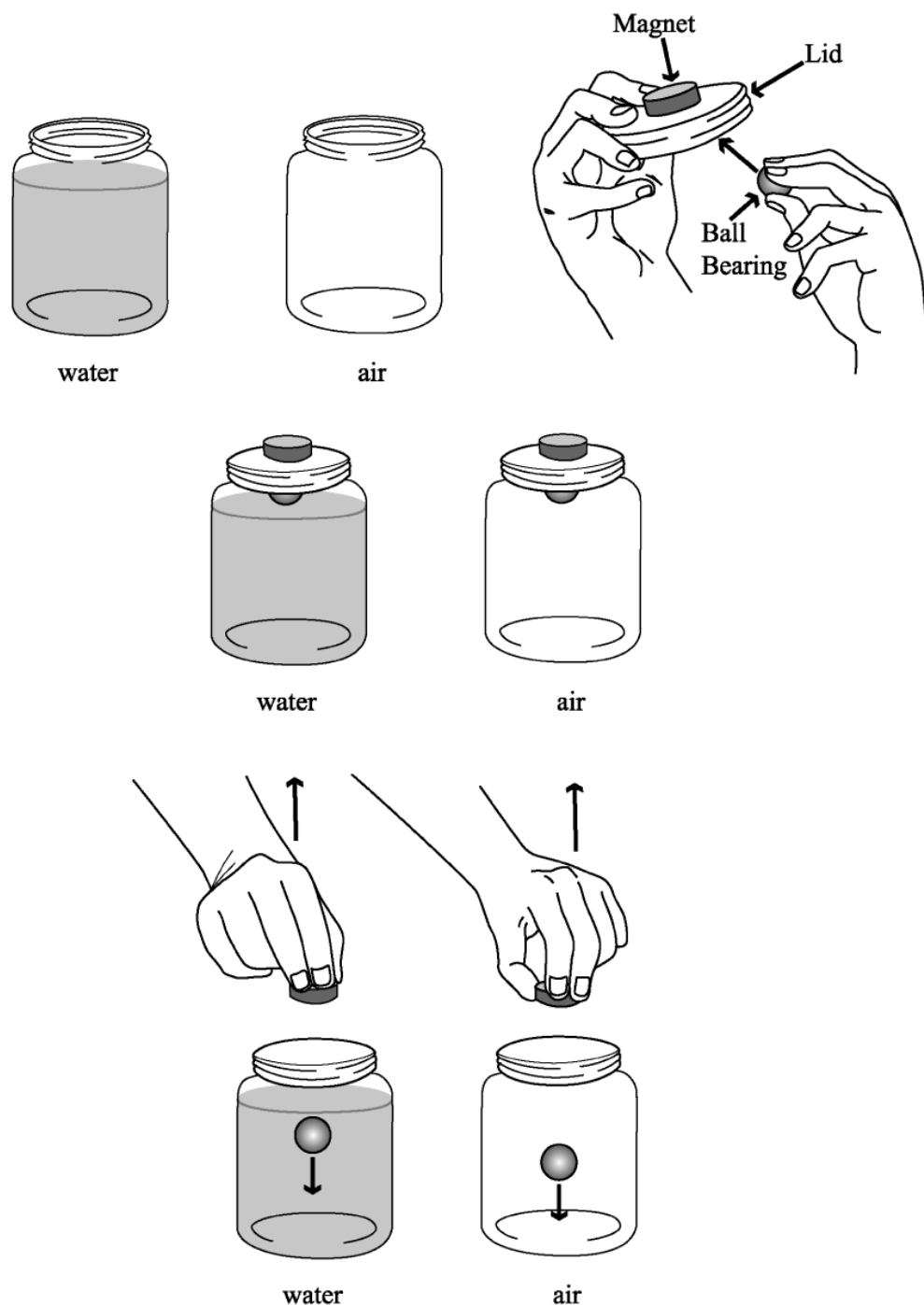


**Science Grade 8
Scoring Guide for
Released Item #50
Properties of Water and Air
Fall 2005**



Prompt

Casey has two glass jars of the same size. He fills one with water; the other contains air. He places a flat magnet on the top of each lid and a metal ball bearing on the inside of each lid under the magnet. He then screws each lid onto a jar. The magnets hold the ball bearings in place under the lids. Casey then removes the magnets at the same time, and the ball bearings drop into the jars.



ANSWER THE FOLLOWING CONSTRUCTED-RESPONSE ITEM IN YOUR ANSWER FOLDER.

Constructed-Response
(3 points)

Water and air have several different properties.

- Describe two ways that water *differs* from air.
- Describe one way that water is *similar* to air.

NOTHING WRITTEN IN THIS TEST BOOKLET WILL BE SCORED.

Science Rubric for the Properties of Water and Air

Acceptable Responses:

Differences

- Water is a liquid, and air is a gas.
- Water is denser than air.
- Water is compound, and air is a mixture.
- Water molecules slip/slide in water vs. air molecules move more freely.
- Water can be seen; air cannot.
- Molecules are further apart in air.
- Other acceptable responses

Similarities

- Neither has color.
- Both take the shape of the container they are in.
- Both are required for life on earth.
- Both are fluids.
- Both have oxygen (O₂).
- Both have particles that arranged randomly.
- Other acceptable responses

NOTE: Assume the student is answering the question based on observations of the jar of air and water.

Scoring Guide:

- 3 Points** Student correctly describes two differences and one similarity between water and air.
- 2 Points** Student correctly describes two differences between water and air.
OR
The student correctly describes one difference and one similarity between water and air.
- 1 Point** Student correctly describes one difference between water and air.
OR
The student correctly describes one similarity between water and air.
- 0 Points** Student fails to understand the task.

Condition codes for unratable papers (zeroes):

A – Off Topic

B – Written in a Language other than English or Illegible

C – Blank or Refusal to Respond

Anchor Paper 1 – Score Point 3☐

- Constructed Response

Two ways that water and air are different is their density and their mass. The water is heavier and denser than the air. They are the same because they both contain oxygen in them.

**Anchor Paper 1
Score Point 3**

The student correctly describes two differences between water and air (*The water is heavier and denser than the air*) and one similarity between water and air (*they both contain oxygen in them*).

Anchor Paper 2 – Score Point 3

- Constructed Response

Water Can be seen and air can not.
air can be breathed and water of
course can not. One way water and
air are similar is that we cant
live without them both.

**Anchor Paper 2
Score Point 3**

The student correctly describes two differences between water and air (*Water can be seen and air can not. air can be breathed and water of course can not*) and one similarity between water and air (*we cant live without them both*).

Anchor Paper 3 – Score Point 3

- Constructed Response

Water differs from air because water is a liquid and is more dense than air. Air is different from water because it is a gas and is less dense than air. One way that water is similar to air is that they both have no definite shape.

**Anchor Paper 3
Score Point 3**

The student correctly describes two differences between water and air (water is a liquid and is more dense than air. Air is different from water because it is a gas and is less dense than air) and one similarity between water and air (they both have no definite shape).

Anchor Paper 4 – Score Point 3

- Constructed Response

Water differs from air because air is an gas and water is a liquid. Air differ from water because water can be seen and air can't.

Water and air are similar because they both are a matter.

Anchor Paper 4
Score Point 3

The student correctly describes two differences between water and air (*air is an gas and water is a liquid....water can be seen and air can't*) and one similarity between water and air (*they both are a matter*).

Anchor Paper 5 – Score Point 2

- Constructed Response

• Water has less gravitational pull cause the ball in it needs to get through the water at a much slower speed
• water is more dense than air.

• Water can be warm or cold, and Air can be warm or cold.

Anchor Paper 5
Score Point 2

The student correctly describes one difference between water and air (*water is more dense than air*) and one similarity between water and air (*Water can be warm or cold, and air can be warm or cold*). The statement that “*Water has less gravitational pull*” is incorrect.

Anchor Paper 6 – Score Point 2

- Constructed Response

Water has more buoyancy than air. Water has less of a gravitational pull than air. Water and air both have a gravitational pull.

**Anchor Paper 6
Score Point 2**

The student correctly describes one difference between water and air (*Water has more buoyancy than air*) and one similarity between water and air (*Water and air both have a gravitational pull*). "*Water has less of a gravitational pull than air*" is incorrect.

Anchor Paper 7 – Score Point 2

- Constructed Response

Water is thicker than air and more dense. They are the same because they let us live.

**Anchor Paper 7
Score Point 2**

The student correctly describes one difference between water and air (*Water is thicker than air*) and one similarity between water and air (*they Let us live*). "*Water is...more dense,*" although not incorrect, is the same as "*Water is thicker than air*" and so does not receive separate credit.

Anchor Paper 8 – Score Point 2

- Constructed Response

Water is a liquid and air is a gas.
Water feels wet against your skin and
air feels dry. Water and air are
similar because air surrounds water.

**Anchor Paper 8
Score Point 2**

The student correctly describes two differences between water and air (*Water is a liquid and air is a gas. Water feels wet against your skin and air feels dry*). "*air surrounds water*" is incorrect.

Anchor Paper 9 – Score Point 1

- Constructed Response

Water is wet air is not
Gravity afest Water and air

**Anchor Paper 9
Score Point 1**

The student correctly describes one similarity between water and air (*Gravity afest Water and air*). "*Water is wet air is not*" is not acceptable as a difference between water and air. This statement is incorrect because air may contain water vapor in the form of humidity. The perception that water feels wet versus air feeling dry is acceptable as a difference (compare A8).

Anchor Paper 10 – Score Point 1**Constructed Response**

water is a liquide and air is oxoyiene. water has mass
air dose not. People need thease to thing to survive,

Anchor Paper 10**Score Point 1**

The student correctly describes one similarity between water and air (*People need thease to thing to survive*). The statements that “*water is a liquide and air is oxoyiene*” and “*water has mass air dose not*” are incorrect. Air contains oxygen but is not oxygen and both water and air have mass.

Anchor Paper 11 – Score Point 1

- Constructed Response

• One way water differs from air is that water is a substance and takes up ^{more} room than air. Now air is a non substance because it doesn't take up any room. like for instance it took longer for the ball bearing to drop in the water, than the air.

• Water and air are similar by the molecules that help make up the substances in both water and air.

Anchor Paper 11

Score Point 1

The student correctly describes one similarity between water and air (by the molecules that help make up the substances in both water and air). "Water is a substance and takes up more room than air. Now air is a non substance because it doesn't take up any room" is incorrect.

Anchor Paper 12 – Score Point 0

- Constructed Response

Water and air are different
because on has more
buoyancy than the other
also the gravity in water
is slower. Water and air
are both elements.

**Anchor Paper 12
Score Point 0**

The student fails to understand the task. Stating “because on has more buoyancy than the other” does not identify water as having more buoyancy and is not acceptable as a difference between water and air. “The gravity in water is slower” is incorrect. “Water and air are both elements” is incorrect.